

## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

GILL JENNINGS & EVERY  
Broadgate House  
7 Eldon Street  
London EC2M 7LH  
ROYAUME-UNI

Date of mailing (day/month/year) 17 September 2001 (17.09.01)	<b>IMPORTANT NOTIFICATION</b>  International filing date (day/month/year) 22 December 1999 (22.12.99)
Applicant's or agent's file reference REP05973WO	
International application No. PCT/GB99/04377	

1. The following indications appeared on record concerning:	
<input checked="" type="checkbox"/> the applicant	<input checked="" type="checkbox"/> the inventor <input type="checkbox"/> the agent <input type="checkbox"/> the common representative
Name and Address SANTANGELO, Joseph, David Dept. of Infectious Diseases Imperial College School of Medicine at the Hammersmith Campus Du Cane Road London W12 ONN United Kingdom	State of Nationality GB
	State of Residence GB
	Telephone No.
	Facsimile No.
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:	
<input type="checkbox"/> the person <input type="checkbox"/> the name <input checked="" type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence	
Name and Address SANTANGELO, Joseph, David Microscience Limited 545 Eskdale Road Winnersh Triangle Wokingham Berkshire RG41 5TU United Kingdom	State of Nationality GB
	State of Residence GB
	Telephone No.
	Facsimile No.
3. Further observations, if necessary:	
4. A copy of this notification has been sent to:	
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned
<input type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	Authorized officer  Idhir BRITEL  Telephone No.: (41-22) 338.83.38
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## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
United States Patent and Trademark  
Office  
Box PCT  
Washington, D.C.20231  
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

<b>Date of mailing (day/month/year)</b> 06 September 2000 (06.09.00)	
<b>International application No.</b> PCT/GB99/04377	<b>Applicant's or agent's file reference</b> REP05973WO
<b>International filing date (day/month/year)</b> 22 December 1999 (22.12.99)	<b>Priority date (day/month/year)</b> 22 December 1998 (22.12.98)
<b>Applicant</b> HUGHES, Martin, John, Glenton et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
22 May 2000 (22.05.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer</p> <p>Juan Cruz</p> <p>Telephone No.: (41-22) 338.83.38</p>
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## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>REP05973WO</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 99/ 04377</b>	International filing date (day/month/year) <b>22/12/1999</b>	(Earliest) Priority Date (day/month/year) <b>22/12/1998</b>
Applicant <b>MICROSCIENCE LIMITED et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 7 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of invention is lacking** (see Box II).

## 4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

**GROUP B STREPTOCOCCUS PROTEINS, AND THEIR USE.**

## 5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.



None of the figures.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB 99/04377

## B x I Observations where certain claims were found unsatisfactory (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
  
Although claim 7 is partially directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## B x II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:  
  
1-12 invention 1, 6, 8, 9, and 10
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference REP05973WO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB99/04377	International filing date (day/month/year) 22/12/1999	Priority date (day/month/year) 22/12/1998
International Patent Classification (IPC) or national classification and IPC C12N15/31		
Applicant MICROSCIENCE LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 7 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  22/05/2000	Date of completion of this report  22.03.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Stolz, B  Telephone No. +49 89 2399 8416



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/04377

## I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).):*

### Description, pages:

1-19 as originally filed

### Claims, No.:

1-11 as received on 08/02/2001 with letter of 07/02/2001

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/04377

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

## III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application.
- ☒ claims, Nos. 1-11 (partially).

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the said claims Nos. 1-11 (partially).

2. A meaningful international preliminary examination report cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

- ☐ the written form has not been furnished or does not comply with the standard.
- ☐ the computer readable form has not been furnished or does not comply with the standard.

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-3, 5-11
	No: Claims 4
Inventive step (IS)	Yes: Claims
	No: Claims 1-11
Industrial applicability (IA)	Yes: Claims 1-11

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB99/04377

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No: Claims

2. Citations and explanations  
**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**



**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-12 partially

Pho1-13, nucleotides encoding the protein, antibody against the protein and their uses

2. Claims: 1-12 partially

Pho3-21, nucleotides encoding the protein, antibody against the protein and their uses

3. Claims: 1-12 partially

Pho2-15, nucleotides encoding the protein, antibody against the protein and their uses

4. Claims: 1-12 partially

Pho3-18, nucleotides encoding the protein, antibody against the protein and their uses

5. Claims: 1-12 partially

Pho3-22, nucleotides encoding the protein, antibody against the protein and their uses

6. Claims: 1-12 partially

Pho3-3, nucleotides encoding the protein, antibody against the protein and their uses

7. Claims: 1-12 partially

Pho3-17, nucleotides encoding the protein, antibody against the protein and their uses

8. Claims: 1-12 partially

Pho2-2, nucleotides encoding the protein, antibody against the protein and their uses

9. Claims: 1-12 partially

Pho1-5, nucleotides encoding the protein, antibody against the protein and their uses

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

10. Claims: 1-12 partially

Pho3-1, nucleotides encoding the protein, antibodies against the protein and their uses

11. Claims: 1-12 partially

Pho3-23, nucleotides encoding the protein, antibodies against the protein and their uses

12. Claims: 1-12 partially

Pho3-50, nucleotides encoding the protein, antibodies against the protein and their uses

13. Claims: 1-12 partially

Pho1-14, nucleotides encoding the protein, antibodies against the protein and their uses

14. Claims: 1-12 partially

Pho2-10, nucleotides encoding the protein, antibodies against the protein and their uses

15. Claims: 1-12 partially

Pho3-14, nucleotides encoding the protein, antibodies against the protein and their uses

16. Claims: 1-12 partially

Pho3-24, nucleotides encoding the protein, antibodies against the protein and their uses

17. Claims: 1-12 partially

Pho3-29, nucleotides encoding the protein, antibodies against the protein and their uses

## INTERNATIONAL SEARCH REPORT

International Application No

P GB 99/04377

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/31 C12N15/57 C12N15/53 C12N15/56 C12N15/61  
 C12N1/21 A61K39/09 C12Q1/37 C12Q1/32 C12Q1/34  
 C12Q1/533 G01N33/68 C07K16/12 A61K48/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K C12N A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

BIOSIS, EPO-Internal, STRAND

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>LARSSON CHARLOTTE ET AL: "Experimental vaccination against group B streptococcus, an encapsulated bacterium, with highly purified preparations of cell surface proteins rib and alpha."            INFECTION AND IMMUNITY 1996, vol. 64, no. 9, 1996, pages 3518-3523, XP002135397            ISSN: 0019-9567            the whole document</p> <p style="text-align: center;">--- -/--</p>	6-11



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

30 June 2000

Date of mailing of the international search report

13.07.00

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

Van der Schaal, C

## INTERNATIONAL SEARCH REPORT

International Application No

P GB 99/04377

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WÄSTFELT M ET AL: "Identification of a family of streptococcal surface proteins with extremely repetitive structure" JOURNAL OF BIOLOGICAL CHEMISTRY., vol. 271, no. 31, 2 August 1996 (1996-08-02), pages 18892-18897, XP002135770 MD US the whole document ---	6-11
X	GIFFARD PHILIP M ET AL: "The ftf gene encoding the cell-bound fructosyltransferase of Streptococcus salivarius ATCC 25975 is preceded by an insertion sequence and followed by FUR1 and clpP homologues." JOURNAL OF GENERAL MICROBIOLOGY 1993, vol. 139, no. 5, 1993, pages 913-920, XP000891932 ISSN: 0022-1287 cited in the application the whole document -& EMBL DATABASE Accession no P36398 Sequence ID CLPP_STRSL 01 June 1994 XP002135400 ---	1-5,12
A	MAURIZI M ET AL: "Sequence and structure of ClpP protease of Escherichia coli" JOURNAL OF BIOLOGICAL CHEMISTRY., vol. 265, no. 21, 25 July 1990 (1990-07-25), pages 12536-12545, XP002135771 MD US ---	
E	WO 00 06736 A (HANNIFFY SEAN BOSCO ; LE PAGE RICHARD WILLIAM FALLA (GB); WELLS JER) 10 February 2000 (2000-02-10) the whole document especially SEQ ID NO 27 and 28 ---	1-12
X	TSUKIOKA YUICHI ET AL: "Biological function of the dTDP-Rhamnose synthesis pathway in Streptococcus mutans." JOURNAL OF BACTERIOLOGY, vol. 179, no. 4, 1997, pages 1126-1134, XP002141323 ISSN: 0021-9193 the whole document -& EMBL DATABASE Accession no P95779 Sequence ID P95779 1 May 1997 XP002141324 --- -/--	1-5,12

## INTERNATIONAL SEARCH REPORT

International Application No

GB 99/04377

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EMBL DATABASE Accession no 054547 Sequence ID 054547 1 June 1998 COFFEY T ET AL: "Recombinational exchanges at the capsular polysaccharide biosynthesis locus...." XP002141325 the whole document & MOLECULAR MICROBIOLOGY, vol. 27, 1998, pages 73-83, -----	1-5,12

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

GB 99/04377

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0006736    A	10-02-2000	NONE	